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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/075,054	02/13/2002	Nabil R. Yousef	BP 2003	7454

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EXAMINER	
FILE, ERIN M	

ART UNIT	PAPER NUMBER
2634	

DATE MAILED: 06/02/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/075,054	YOUSEF, NABIL R.	
	Examiner	Art Unit	
	Erin M. File	2634	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *13 February 2002*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-69* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2,4,7,8,15-20,28,31-36,40, 42-47,50,51,58-61,63,64,68 and 69* is/are rejected.

7)☒ Claim(s) *3,5,6,9-14,21-27,29,30,37-39,41,48,49,52-57,62 and 65-67* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *13 February 2002* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Specification

1. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

The abstract as submitted is not written in complete sentences. Further, the abstract exceeds 150 words. Appropriate correction is required.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1, 2, 4, 7, 8, 17-20, 28, 31, 34-36, 40, 42, 45-47, 50, 51, 60, 61, 63, and 64 are rejected under 35 U.S.C. 102(e) as being anticipated by Agazzi.

Claim 1, 17, 18, 34, 45, 60, Agazzi discloses a method of estimating and equalizing a receiving channel in which a received channel is estimated (fig. 13, 1305) with already known training signals ([0083], lines 29-30) and equalized (1300). The channel estimation block models the channel based on a look-up table that is able to repeatedly adapt to the characteristics of the channel through update functions with a decision feedback equalizer ([0092]). The look-up table coefficients can effectively function as tap coefficients in the equalizer. The use of channel estimation to remove errors induced by the channel from the signal is an obvious purpose of channel estimation to one skilled in the art.

Claims 2, 46, inherit the limitations of Claims 1, 45, respectively, further Agazzi discloses the channel estimator (fig. 14B, 1433) repeatedly estimates the channel and uses this information to determine the coefficients of the look-up table (1435).

Claims 4, 28, 40, 47, 61, Agazzi further discloses equalizer coefficient identification can be determined by the transmitter sending a training sequence known a priori to the receiver. The nonlinear channel estimator (fig. 13, 1305) can then be trained using the known training sequence. ([0083])

Claims 7, 31, 42, 45, 50, 63, Agazzi further discloses his non-linear equalizer (fig. 13, 1300) is a decision feedback equalizer ([0083]).

Claims 8, 19, 35, 36, 51, 64, inherit the limitations of Claims 1, 18, 34, 35, 45, 60 respectively, further, Agazzi discloses a shift register (fig. 4, 407) which stores the input bits, comprising both training bits and data bits, which are used in determining the equalizer coefficients.

Claim 20, inherits the limitations of Claim 19, further Agazzi describes a channel estimation model in figure 4 in which input bits containing both data and training symbols (fig. 4, 401) are stored in shift register (407) and used for the channel estimation.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claim 15, 16, 32, 33, 43, 44, 58, 59, 68, and 69 are rejected under 35 U.S.C. 103(a) as being unpatentable over Agazzi and in further view of Fulgham et al.

Claims 15, 32, 43, 58, 68, inherit the limitations of Claims 1, 17, 34, 45, 60, respectively, Agazzi fails to disclose his system used within the context of a transceiver, however Fulgham discloses a transceiver (fig. 1, 40) which uses both channel estimation ([0022], line 8) and equalization ([0006], line 2). It would be obvious to one skilled in the art at the time of invention to use Agazzi's equalization method in Fulgham's invention because both inventions use soft decoding to equalize a received data channel.

Claims 16, 33, 44, 59, 69, inherit the limitations of Claims 1, 17, 34, 45, 60, respectively, Agazzi fails to disclose his receiver is contained within one of a base station receiver, a mobile receiver, a tower receiver, and a high definition television set top box, however Fulgham discloses his transceiver contained within a mobile terminal ([0022]). It would be obvious to one skilled in the art at the time of invention to use Agazzi's equalization method in Fulgham's invention because both inventions use soft decoding to equalize a received data channel.

6. Claims 3, 5, 6, 9-14, 21-27, 29, 30, 37-39, 41, 48, 49, 52-57, 62, and 65-67 are objected to as dependent upon rejected claims, but would be allowable if rewritten in independent form.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Erin M. File whose telephone number is (571)272-6040. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Chin can be reached on (571)272-3056. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Erin M. File

EMF

5/9/05

STEPHEN CHIN
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